

B.TECH.(CSE) SEMESTER VIII EXAMINATION, 2023

Paper Code: MOOCS 3

DATA STRUCTURE

Time: 3 Hours

Maximum Marks: 75

SECTION A

Note: Attempt All Questions from this Section

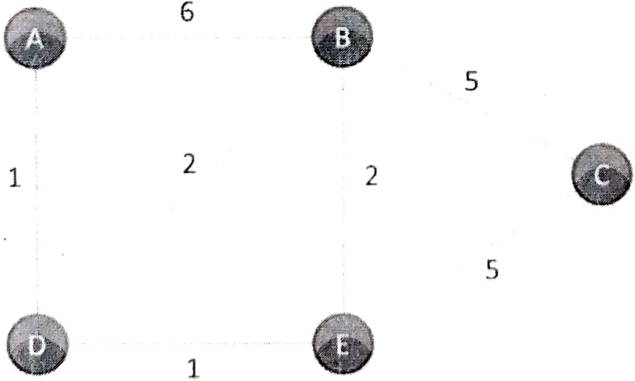
5 X 7 = 35

Q.No	Questions	Marks	CO	BL
1	What is data structure. Explain types of data structures.	7	CO-1	BL-1
2	How can we Insert an Element at the beginning of a Singly Linked List. Explain with the help of a pseudo code.	7	CO-4	BL-3 and BL-4
3	Write any two practical applications where the Queue Data structure can be used.	7	CO-5	BL-4
4	What are splay trees. What are their unique properties.	7	CO-3	BL-1
5	Write a pseudo code/algorithm to find the second largest element from a list of numbers stored in an array.	7	CO-2	BL-2

SECTION B

Note: Attempt any FOUR (04) Questions

4 X 10 = 40

1	Write an algorithm/pseudo code to pop the middle element from the stack.	10	CO-2	BL-4
2	What do you mean by tree traversal. With the help of example explain the concept of different types of tree traversals.	10	CO-1	BL-2
3	Write an algorithm/pseudo code to show insertion of an element in an AVL tree.	10	CO-3	BL-2 and BL-3
4	With the help of an example, explain the concept of merge sort or heap sort.	10	CO-4	BL-1 and BL-3
5	Identify the shortest path from Source node A using Dijkstra's algorithm for the graph given below. 	10	CO-5	BL-5
6	With the help of an example explain the concept of binary search tree. Show insertion and deletion operations.	10	CO-1	BL-4 and BL-5